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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/551,125

08/07/2006

Toshitaka Kawanami

21581-00349-US1

3983

30678

7590

03/08/2010

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EXAMINER

RIPA, BRYAN D

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

03/08/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/551,125	Applicant(s) KAWANAMI ET AL.	
	Examiner BRYAN D. RIPA	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/22/05; 3/7/06; 7/17/06; 5/29/09</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 3, 11, 13, 15 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically, claims 3 and 11 each contains the following limitation “wherein the heating in said post-baking step is continuous from said pre-baking step” (see the last line of claims 3 and 11). While this limitation in of itself does not appear to be unclear, it is unclear however how the activation energy beam irradiation step can occur before the post-baking step, as required by claim 1, when the limitation of claim 3 requires the post-baking step to begin right at the end of the pre-baking step.

Please note, in terms of claim interpretation for examination purposes, the Examiner is interpreting the limitation of claim 3 as requiring the activation energy beam irradiation step and the post-baking step to occur simultaneously upon the ending of the pre-baking step. Although this interpretation ignores the limitation of claim 1 requiring

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the activation energy beam irradiation step to occur before the post-baking step this interpretation appears to be most consistent with Applicant's intent based upon the claim language.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 5-7, 11, 14, 15, 17, 18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Davis et al., (U.S. Pat. No. 3,971,708) (hereinafter referred to as "DAVIS") with evidence from Nishiguchi et al., (U.S. Pub. No. 2004/0137166) (hereinafter referred to as "NISHIGUCHI").

Regarding claim 1, DAVIS teaches a method of forming an electrocoating film (see generally col. 1 lines 1-9) comprising:

- coating a work with an electrocoating composition curable by heating and irradiation with an activation energy beam (see col. 12 lines 45-49 teaching the heat curing being assisted by ionizing radiation in some instances, thereby

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implicitly teaching the possible use of electrocoating compositions curable by both heating and irradiation) using the following steps in order:

- an electrodeposition step (see col. 4 lines 50-56);
- an aqueous cleaning step (see col. 4 lines 56-62);
- a pre-baking step (see col. 4 lines 63-67);
- an activation energy beam irradiation step (see col. 4 line 67-col. 5 line 3 teaching the final curing by baking; see also col. 12 lines 45-49 teaching the final heat curing in some instances being assisted by ionizing radiation; see also ¶78 of NISHIGUCHI evidencing known methods of assisting the heat curing of a cationic electrocoating to include irradiation treatment followed by heating); and
- a post-baking step (see col. 4 line 67-col. 5 line 3).

Regarding claim 2, DAVIS teaches the method of forming an electrocoating film wherein the activation energy beam irradiation step is carried out directly following the pre-baking step without cooling the work (see ¶78 of NISHIGUCHI evidencing known methods of assisting the heat curing of a cationic electrocoating to include irradiation treatment directly followed by heating without cooling the work inbetween).

Regarding claims 3 and 11, DAVIS teaches the method of forming an electrocoating film wherein the heating in the post-baking step is continuous from the pre-baking step (see ¶78 of NISHIGUCHI evidencing known methods of assisting the

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heat curing of a cationic electrocoating to include irradiation treatment occurring concurrently with the heating).

Regarding claims 5, 14 and 15, DAVIS teaches the method of forming an electrocoating film wherein the electrocoating composition is a cationic electrocoating composition (see col. 5 lines 55-62 teaching the use of either anionic or cationic electrodepositable resins).

Regarding claims 6, 17, 18 and 20, DAVIS teaches an electrocoating film as made according to claims 1, 2, 3 and 5 as outlined above.

Regarding claim 7, DAVIS teaches an electrodeposited article having the electrocoating film of claim 6 as outline above.

3. Claims 1-3, 5-11, 14, 15, 17, 18 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by NISHIGUCHI.

Regarding claim 1, NISHIGUCHI teaches a method of forming an electrocoating film (see generally ¶2) comprising:

- coating a work with an electrocoating composition curable by heating and irradiation with an activation energy beam (see ¶78 teaching the curing of the cationic electrodeposition coating being carried out by several methods including

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the use of both ionizing radiation and heating thus implicitly teaching the use of electrocoating compositions curable by both) which uses the following steps in order:

- an electrodeposition step (see ¶90);
- an aqueous cleaning step (see ¶91);
- a pre-baking step (see ¶91);
- an activation energy beam irradiation step (see ¶92 and ¶78 teaching the curing of the cationic electrodeposition coating by irradiation and then heating); and
- a post-baking step (see ¶92 and ¶78 teaching the curing of the cationic electrodeposition coating by irradiation and then heating, i.e. baking).

Regarding claim 2, NISHIGUCHI teaches the method of forming an electrocoating film wherein the activation energy beam irradiation step is carried out directly following the pre-baking step without cooling the work (see ¶78 teaching the curing of the cationic electrocoating by irradiation treatment directly followed by heating without cooling the work inbetween).

Regarding claims 3 and 11, NISHIGUCHI teaches the method of forming an electrocoating film wherein the heating in the post-baking step is continuous from the pre-baking step (see ¶78 teaching the heat curing of a cationic electrocoating to include irradiation treatment occurring concurrently with the heating).

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Regarding claims 5, 14 and 15, NISHIGUCHI teaches the method of forming an electrocoating film wherein the electrocoating composition is a cationic electrocoating composition (see ¶¶76-¶78 teaching the electrodeposition coating being a cationic electrodepositable coating).

Regarding claims 6, 17, 18 and 20, NISHIGUCHI teaches an electrocoating film as made according to claims 1, 2, 3 and 5 as outlined above.

Regarding claim 7, NISHIGUCHI teaches an electrodeposited article having the electrocoating film of claim 6 as outline above.

Regarding claim 8, NISHIGUCHI teaches a method of forming a multilayer film in which the electrocoating film is further coated with an overcoat (see ¶93).

Regarding claim 9, NISHIGUCHI teaches a multilayer film as made according to claim 8 as outlined above.

Regarding claim 10, NISHIGUCHI teaches an article having the multilayer film of claim 8 as outline above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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4. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawanami et al., (J.P. Pub. No. 2002-265882 A) with reference to the provided machine translation (hereinafter referred to as "KAWANAMI") in view of DAVIS with evidence from Takashi et al., (J.P. Pub. No. 2000-096295 A) with reference to the provided machine translation (hereinafter referred to as "TAKASHI").

Regarding claim 1, KAWANAMI teaches a method of forming an electrocoating film (see generally ¶1) comprising:

- coating a work with an electrocoating composition curable by heating and irradiation with an activation energy beam (see ¶9-¶11 teaching the electrocoating composition including a photo-polymerization initiator in a resin composition with sulfonium and propargyl groups), which uses the following steps in order:
 - an electrodeposition step (see ¶40 and ¶42);
 - an aqueous cleaning step (see ¶42 teaching rinsing of the electrodeposited coating which in the case of an aqueous coating would be known in the art to include an aqueous rinse);
 - an activation energy beam irradiation step (see ¶43); and
 - a post-baking step (see ¶46). See also the example in ¶55 teaching the electropainting, rinsing, irradiation, and baking steps occurring in that order.

KAWANAMI, however, does not teach a pre-baking step carried out after the aqueous cleaning step but before the activation energy beam irradiation step.

DAVIS teaches that it was known in the art to use a pre-baking step prior to the steps used for final curing of the coating after a cleaning step to remove any volatile compounds or solvent molecules from the coating (see col. 4 lines 63-67). Moreover, as evidenced by TAKASHI, it was known that employing this sort of pre-baking step prior to the final curing step in the case of a multilayered coating assisted in forming a smoother and sharper coating by evaporating off any water or low molecular weight volatiles from the coating film (see ¶11 and ¶20).

As a result, one of ordinary skill in the art would have readily appreciated the benefits of using a pre-baking step in the method of KAWANAMI and would have been motivated to incorporate the pre-baking step to provide for a smoother coating when the coating is to be used as an undercoat for a multilayered coating as evidenced by TAKASHI or as a means of drying the coating after the aqueous wash as taught by DAVIS.

Consequently, it would have been obvious to one of ordinary skill in the art at the time of invention for at least the reasons mentioned above to have incorporated the pre-baking step of DAVIS into the method of KAWANAMI.

Regarding claim 2, KAWANAMI as modified by DAVIS teaches the method of forming an electrocoating film wherein the activation energy beam irradiation step is carried out directly following the pre-baking step without cooling the work (see DAVIS

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col. 4 lines 63-68 teaching the pre-baking step occurring directly before the final curing step; see also KAWANAMI ¶¶42 and ¶43 teaching the rinsing of the electrodeposited coating prior to curing by irradiation and baking treatments).

Additionally, it would have been obvious to one of ordinary skill in the art in incorporating the pre-baking step of DAVIS into the method of KAWANAMI to carry out the final curing steps, including the activation beam irradiation step and the post-baking step, directly after the pre-baking step without cooling in order to improve the efficiency of the process and reduce the overall energy requirement for running the process.

Regarding claims 3 and 11, KAWANAMI teaches the method of forming an electrocoating film wherein the heating in the post-baking step is continuous from the pre-baking step (see ¶50 teaching the final curing of the electrocoating being achieved by exposure of the coating simultaneously to both the irradiation and the heating treatments).

Regarding claims 4, 12 and 13, KAWANAMI teaches the method of forming an electrocoating film wherein the electrocoating composition comprises a resin composition containing sulfonium and propargyl groups (see ¶9-¶11).

Regarding claims 5 and 14-16, KAWANAMI teaches the method of forming an electrocoating film wherein the electrocoating composition is a cationic electrocoating composition (see ¶9-¶11).

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Regarding claims 6 and 17-20, KAWANAMI also teaches an electrocoating film as made according to claims 1-5 as outlined above.

Regarding claim 7, KAWANAMI also teaches an electrodeposited article having the electrocoating film of claim 6 as outline above.

Regarding claim 8, KAWANAMI teaches a method of forming a multilayer film in which the electrocoating film is further coated with an overcoat (see ¶51 teaching the curing by irradiation and heat treatments to occur prior to the application of an intermediate coat; see also ¶2 teaching the use of electrodeposited coating in the painting of car bodies requiring multiple layers and ¶52 teaching the present invention usable for forming the underlying electrodeposited coating of a car body).

Regarding claim 9, KAWANAMI teaches a multilayer film as made according to claim 8 as outlined above.

Regarding claim 10, KAWANAMI teaches an article having the multilayer film of claim 8 as outline above.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- 1) Kanakura et al., (U.S. Pub. No. 2002/0188072) (hereinafter referred to as "KANAKURA") which teaches a top coating to go over a cationic electrodeposition coating that is cured by irradiation and/or baking (see ¶87-¶92).
- 2) Sakamoto et al., (U.S. Pub. No. 2002/0050457) (hereinafter referred to as "SAKAMOTO") which teaches a cationic electrodeposition undercoating comprising a resin containing a sulfonium and propargyl groups (see ¶7).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRYAN D. RIPA whose telephone number is 571-270-7875. The examiner can normally be reached on Monday to Friday, 9:00 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Harry D Wilkins, III/
Primary Examiner, Art Unit 1795

/B. D. R./
Examiner, Art Unit 1795